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DRYING RACK FOR CLOTHES DRYER  
[TROCKENGESTELL FUER EINEN WAESCHETROCKNER]

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Patent Claims

1. Drying rack as a removable insert in a drum of a drier with at least one frame to hold the objects to be dried and a device with which the frame is held in the drum, characterized in that the device to hold the frame includes an element (5, 6) on the frame which engages with a bracket (11) on the back of the drum (10) and in that one or several protrusions (8) are provided on the frame for support in the front access opening (12) of the drier.

2. Drier with a rotating drum and an entry opening in the drum featuring a door, perforations in the drum, a device to

circulate heated air through the drum, a center bracket on the back of the drum, a static drier rack as an insert in the drum removable through the opening, whereby the rack has at least one frame to hold objects to be dried, and a device for the stationary holding of the frame inside the drum, characterized in that the device to hold the frame features an element (5, 6) on the frame which is connected in a sliding manner with the bracket (11), and in that one or several protrusions (8) are positioned on the frame which rest on the front access opening (12) of the drier.

3. Drier according to Claim 2, characterized in that the door (13) features a device for an interlocking between the rack (1) and the door (13) with a closed door.

4. Drier according to Claim 2 or 3, characterized in that the bearing element features a ring-shaped element (6) which is in sliding contact via the hub (11) of the drum (10) with it.

5. Drier according to Claim 4, characterized in that the bearing element features an inverted V-shaped wire (5) which features on its tip a loop forming the ring (6).

6. Drier according to one of Claims 2 or 3, characterized in that the bearing element (5, 6) features a protrusion on its tip for a slide connection with a recess in the hub (11) of the drum (10).

7. Drier according to Claim 6, characterized in that the recess exhibits a partially ball-shaped end which can be connected in a slide connection with a mount in the hub (11) of the drum (10).

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#### Drying Rack for Clothes Drier

The invention relates to a drying rack for a clothes drier as a removable insert in a drum of a drier with at least one frame to

hold the objects to be dried and a device with which the frame can be held in the drum. Such a drying rack can be used for example with a so-called tumble drier.

A tumble drier features a perforated rotatable drum through which hot air passes, usually along the drum axis. The turning movement of the drum causes the parts located in the drum to tumble around this flow of warm air whereupon a drying effect

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is produced. In many cases the objects to be dried are very sensitive and a tumbling movement can damage such objects, like wool clothes for example. Many objects are so heavy, like shoes for example, that they do not tumble. It is therefore necessary to hold such objects stationary and to guide the air over or through them. Up to now that was accomplished by a control lock being provided for the tumble drier with which the drum was held stationary but heated air was guided through it. This system had the disadvantage, however, that a system had to be present to decouple the drive unit, whereupon the complexity and thus the costs for such a machine became greater.

The object of the invention is to create a drying rack with which objects can be held stationary in a tumble drier without

the drive unit of the drum having to be decoupled. Furthermore a drier with such a drying rack must be provided.

This object is attained by the drying rack of the type described at the outset which is characterized according to the invention in that the device includes an element on the frame which engages by sliding with a bracket on the back of the drum and one or several protrusions are provided on the frame to rest in the access opening of the drier. The protrusions preferably rest on the stationary part, for example a stationary ring, which serves as a shield but can also rest of the front edge mount of the drum.

During use the rack is inserted in the drum of the drier and the objects are placed on the frame. Since the bracket lies above

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the rack, the weight of the object and the rack remain stationary during the rotation of the drum and the heated air of the rotating drum rises over the objects and through them. The connection between the rack and the drum bracket is so constructed, that only a slight friction appears, whereupon there is the guarantee that the rack basically remains stationary during the rotation of the drum. The surface of the rack basically remains horizontal as long as the torque due to

the rack and the objects to be dried is greater than the rotational torque which seeks to turn the arrangement with the drum. The materials and the construction of the bearing element and the bracket are so selected, that only a small part of the rotational torque of the drum acts on the bearing element and this part is very small in relation to the gravity itself corresponding to the rack alone. In this manner then, the rack remains stationary, when no objects lie on it. One of many connection possibilities can be used to produce the conditions for a sliding contact between the bearing element and the hub of the drum. The bearing element can have a ring coil or a ring which loosely lies over the extension of the hub of the drum, whereby the interior radius of the ring is greater than the radius of the extension. As an alternative, the bearing element can also have an extension which loosely fits into a corresponding recess inside the hub of the drum. Another possible embodiment is one in which the extension on the bearing element has a partially ball-shaped end which loosely fits into a mount formed in the hub of the drum.

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The invention thus furnishes an economical and simple procedure for the possibility of drying sensitive objects which can be used with various types of tumble driers, in that a cheap

accessory part can simply be fitted into the interior of the drier.

According to the invention a drier is also created which features a rotating drum with an entry door into the drum, perforations in the drum, a device to produce a circulation of warm air through the drum, a center bracket on the back of the drum, a stationary drying rack which is an insert removable through the opening and which possesses a frame to hold object to be dried, an elevated bearing element which extends from the frame and a device for a sliding connection of the bearing element with the bracket and one or more protrusions on the frame for fitting on the front access opening of the drier.

In an embodiment of the invention the rack is held by the closed door, whereby the rack and the door remain stationary during the drying process. The protrusions can lie on the stationary entry or the stationary opening or the drum edge, but that is not important in this case. If they lie on it, then the contact with the surfaces must again produce very little friction and thus bring the protrusions out of contact with the drum.

The frame of the rack can be constructed of any material desired and in any shape which is suitable for holding a number of



objects and which enables hot air to circulate around the objects.

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Especially suitable is a design of lengths of plastic-coated wire. The lengths are arranged in the form of a grid, whereby the distance between the individual lengths is on the order of magnitude of 5 cm. As an alternative thereto the frame can also feature a plate which has holes with a radius of about 1 cm.

The rack can include more than a frame to hold objects, whereby the number of frames and their relative separation is limited by the fact that the center of gravity of the rack alone must lie below the level of the connection of the bearing element with the drum, if no special means are provided which are in contact with the drum and prevent a turning.

Other characteristics and possibilities of use of the invention result from the description of embodiments based on drawings.

Shown in the drawings:

Figure 1:           A depiction in perspective of an embodiment of the rack,

Figure 2: A front view in perspective of a tumble drier with a rack according to Figure 1 which is mounted in the drum, and

Figure 3a and 3b: Partial views in perspective of the right end of Figure 1 to illustrate two other embodiments for mounting the rack in the drum.

Figure 1 shows a rack 1 which features a frame 2 of a grid of plastic-coated wire rods 3, 4 which run parallel to the outer

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edges of the frame 2. The bearing element 5 is constructed in the shape of an inverted V whose both ends are connected with the frame 2 at its ends. The plane of the bearing element 5 is vertical to the surface of the frame 2. In the apex or in the uppermost point of the bearing element 5 there is a ring coil or a ring 6 whose interior diameter is larger than the that of the hub 11 of the drum. If the rack is mounted in the drier, then the ring 6 is fitted over the hub 11. The side of the frame 2 opposite that which is connected with the bearing element 5 features two arms 7 which extend parallel to each other away from the frame 2 but in a direction opposite to the bearing element 5. Each arm 7 has a protrusion 8 constructed in a step-

like manner on the end that is turned away from the frame 2. Each arm 7 with a protrusion 8 has an additional support in the form of a hoop-like transverse carrier 9 which extends between the common connection of the arm 7 and the protrusion 8 and the side of the frame 2 that is connected with the bearing element 5.

Figure 2 shows the rack 1 as it is mounted in the correct position in the drum 10 of the tumble drier 14. It can be recognized, that the ring 6 is emplaced across the cap of the hub 11 of the bracket of the drum 10, so that during the turning of the drum 10 and hub 11 the ring 6 does not tightly grip the hub 11 and thus remains basically stationary. As can be seen, the protrusions 8 are so positioned that they rest on the edge 12 of the entry opening of the drum 10 and thus support the rack 1. In addition, the free ends of the protrusions 8 can be so constructed that they move into contact with the recesses 15 in the door 13 of the tumble drier, so that a solid, stationary support for the rack is formed.

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The depicted edge 12 forms a part of a heat shield and is constructed stationary and has the effect that the rack can not be turned. The protrusions can rest on one part of the drum itself, if it is produced from a material with a low friction.

Figures 3a and 3b show two other embodiments for mounting the rack 1 on the hub 11 of the drum 10. In Figure 3a a cylindrical extension 16 is so positioned in the apex of the bearing element 5 that upon emplacement of the rack 1 in the drum this moves into a sliding contact with a non-depicted recess in the hub of the drum. In a variation thereof as shown in Figure 3b, the extension element 17 has an end constructed with a partial ball-shape which moves into a sliding contact with a non-depicted mount in the hub.

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Figure 1

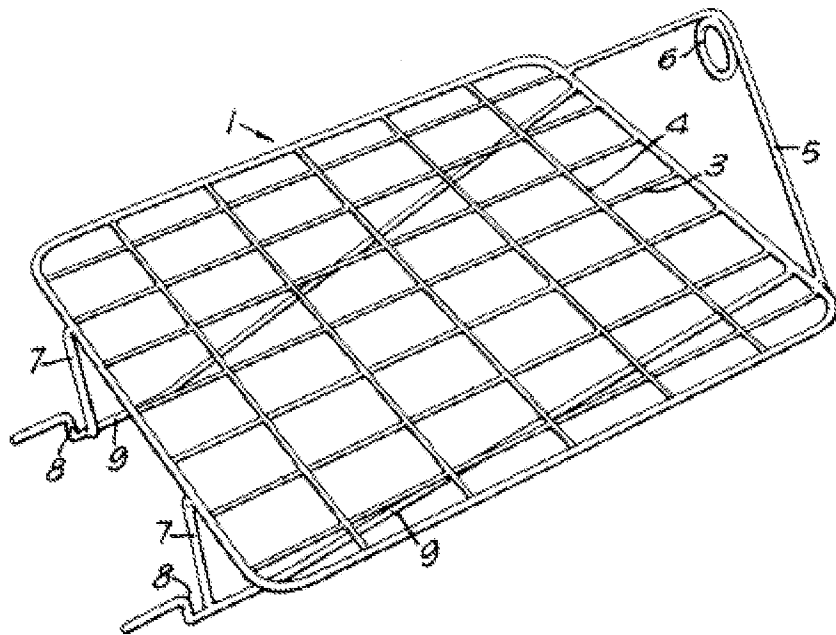


Figure 3a

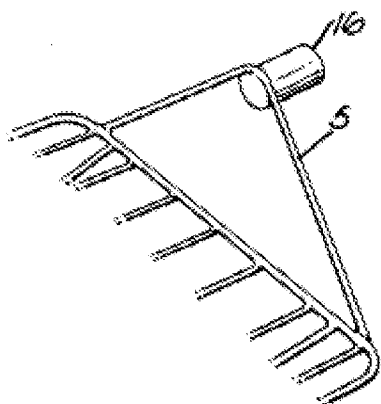
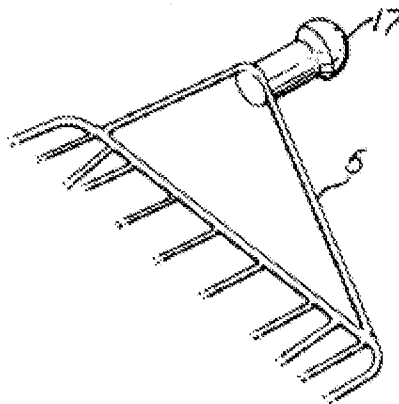


Figure 3b



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Figure 2

